

## CLAIMS

What is claimed is:

- 1     1.     A method comprising the steps of:  
2                 providing a liquid rubber that has multiple sites of unsaturation;  
3                 chemically modifying the liquid rubber's sites of unsaturation to yield alternate  
4                 functionalities and thereby create a functionalized liquid rubber; and  
5                 terminating a metallic or organometallic-initiated living polymer with the  
6                 functionalized liquid rubber.
- 1     2.     The method of claim 1, wherein said liquid rubber has been synthesized with at least one  
2                 conjugated diene monomer.
- 1     3.     The method of claim 1, wherein said liquid rubber is polybutadiene.
- 1     4.     The method of claim 1, wherein said metallic or organometallic-initiated living polymer  
2                 is a polymeric organo-lithium.
- 1     5.     The method of claim 1, wherein said metallic or organometallic-initiated living polymer  
2                 is poly(styryl)lithium or poly(butadienyl)lithium.
- 1     6.     The product produced by the process of claim 1.
- 1     7.     The method of claim 1 wherein said alternate functionalities are selected from the group  
2                 consisting of epoxide, maleic anhydride, and alkoxysilane functional groups.
- 1     8.     The method of claim 1 further comprising the step of performing hydrolysis on the  
2                 alternate functionalities to yield hydroxy or carboxy functional groups.
- 1     9.     The method of claim 1, wherein said liquid rubbers are linear or branched.

- 1 10. A synthetic polymer with at least one highly-functionalized liquid-rubber chain-end  
2 moiety.
- 1 11. The synthetic polymer of claim 10, wherein said synthetic polymer is a polydiene.
- 1 12. The synthetic polymer of claim 10, wherein said synthetic polymer is selected from the  
2 group consisting of polystyrene, polybutadiene, and polyisoprene.
- 1 13. The synthetic polymer of claim 10, wherein said liquid rubber is polybutadiene.
- 1 14. The synthetic polymer of claim 10, wherein said highly-functionalized liquid- rubber  
2 chain-end moiety comprises functional groups selected from the group consisting of:  
3 maleic anhydride groups, epoxide groups, hydrolyzed maleic anhydride groups, and  
4 hydrolyzed epoxide groups.
- 1 15. A star polymer comprising a highly-functionalized liquid-rubber core and at least one  
2 polymeric arm prepared by anionic polymerization.
- 1 16. The star polymer of claim 15, wherein said polymeric arm is polystyrene, polyisoprene,  
2 or polybutadiene.
- 1 17. The star polymer of claim 15, wherein said core is polybutadiene.